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1954 Hurricane Damage On Penobscot Experimental Forest

The two hurricanes "Carol" and "Edna" that struck inland over New England this summer caused some timber losses. But the damage was neither so extensive nor so severe as the damage done by the hurricane of 1938 and the storms of 1950.

The full force of Hurricane Carol on August 31 was not felt in the eastern half of Maine. The storm center passed about 150 miles west of Bangor; but winds of 30 miles per hour velocity, with gusts up to 50, were recorded at Old Town. The winds were from the south and southeast. Rainfall that day was 1.09 inches.

However, the eye of Hurricane Edna passed about 50 miles southeast of Bangor. Winds of 40 miles per hour, with gusts up to 62, were recorded at Old Town. This time the winds came from the north and northeast. And in this storm 7.14 inches of rain were recorded at the Penobscot Experimental Forest (located about 8 miles northeast of Bangor).

Hurricane Carol caused some blowdown on the Experimental Forest, but the greater part of the damage was done by Hurricane Edna. Since the winds came from opposite directions in the two storms, some of the trees protected from one storm were exposed to the other. The drenching rain that preceded and accompanied Edna saturated the soil and must have loosened the tree roots considerably.

A check of the damage was made on 177 permanent 1/5-acre sample plots on the Experimental Forest, in the area used for compartment-management studies. The stands here are softwood types, on low-lying land. The principal species are red and white spruce, balsam fir, and hemlock.

The check showed an average loss of about 1/4 cord per acre. The trees lost were in the 5-inch and larger class. They numbered less than 4 trees per acre.

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Losses seemed to be related to species, site, and exposure. Some 70% of the trees lost to wind were balsam fir; these trees made up barely half of the volume lost. Spruce trees accounted for a fourth of the volume lost. The rest of the loss was in all other species. Many of the balsam fir trees had butt rot, and were broken by the wind. Losses were particularly heavy along roads, in openings in the forest, and on open edges of the forest.

The cutting practices tested in this area seemed to be closely related to the extent of wind damage. Stands where good and high-order cutting practices had been used suffered the lightest damage: 3.7 trees or 0.18 cord per acre. These compartments had been cut lightly (15 to 35% of the volume removed) and most of the poor-risk trees had already been taken out. The growing stock was of good density, well spaced, and in good condition.

The heaviest losses--5.1 trees or 0.37 cord per acre--were in stands where fair and poor cutting practices had been tried. Here 50 to 90% of the volume had been removed with diameter-limit cuttings or clear-cuttings. The growing stock here was irregular and patchy, and in places very open.

Damage on uncut areas was 3.2 trees or 0.25 cord per acre. Although these stands had been undisturbed, they contained large, partially defective trees weakened by rot. Breakage of these trees contributed greatly to the rather large volume lost here.

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